



Tegrah
Engineering, P.C.

October 26, 2015

Ms. Amy Fritz
Tennessee Department of Environment
and Conservation
Division of Water Resources
Jackson Environmental Field Office
1625 Hollywood Drive
Jackson, Tennessee 38305

**Subject: General Aquatic Resource Alteration Permit Application
Brownsville 2015 CDBG Sewer System Improvements**
ECD No. (to be assigned)
Brownsville Energy Authority
Tegrah Project No. 1052

Dear Ms. Fritz:

On behalf of our client, enclosed for review is the Aquatic Resource Alteration Permit application for the subject project for coverage under the *General Permit for Utility Line Crossings* and the review fee check in the amount of \$500.00. Please let me know if you have any questions or require any additional information so that any issues may be promptly resolved.

Sincerely,
Tegrah Engineering, P.C.

Angelia Howard
Senior Project Manager

Copy: Regie Castellaw (Brownsville Energy Authority)
Betsy Wigington (Community Development Partners)
File 1052 / 3.3

**TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION**

Division of Water Resources

William R. Snodgrass Tennessee Tower, 312 Rosa L. Parks Avenue, 11th Floor, Nashville, Tennessee 37243


1-888-891-8332 (TDEC)

Application for Aquatic Resource Alteration Permit (ARAP) & State §401 Water Quality Permit

OFFICIAL STATE USE ONLY	Site #:	Permit #: NR1502.065
Section 1. Applicant Information (individual responsible for site, signs certification below)		
Applicant Name: Brownsville Energy Authority		
Company: Brownsville Energy Authority	Signatory's Title or Position: General Manager	
Mailing Address: 25 North Lafayette	City: Brownsville	State: TN Zip: 38012
Phone: 731-772-8845	Fax: 731-772-8811	E-mail: rcastellaw@budutil.com
Section 2. Alternate Contact/Consultant Information (a consultant is not required)		
Alternate Contact Name: Ms. Angelia Howard		
Company: Tegrah Engineering, P.C.	Title or Position: Senior Project Manager	
Mailing Address: 10162 Stinson Street	City: Milan	State: TN Zip: 38358
Phone: 731-613-2034	Fax: 731-613-2019	E-mail: angelia@tegrah.com
Section 3. Fee (check appropriate box and submit requisite fee with application)		
<input type="checkbox"/> No Fee Submitted <input checked="" type="checkbox"/> Fee Submitted with Application Amount Submitted: \$ <u>500.00</u>		
Current fee schedules for Aquatic Resource Alteration Permit processing may be found at the Division of Water Resources webpage at http://www.tn.gov/environment/permits/arap.shtml or by calling (615) 532-0625. Make checks payable to "Treasurer, State of Tennessee".		
Section 4. Project Details (fill in information and check appropriate boxes)		
Site or Project Name: Brownsville 2015 CDBG Sewer System Improvements - Gravity Sewer Crossing of Sugar Creek		Nearest City, Town or Major Landmark: Brownsville, TN
Street Address or Location: Sugar Creek at Brownsville Wastewater Trickling Filter Plant, which is located west of S. Washington Ave.		
County(ies): Haywood	MS4 Jurisdiction:	Latitude (dd.dddd): See Attachment 1 of Supporting Documentation Longitude (dd.dddd): See Attachment 1 of Supporting Documentation
Resource Proposed for Alteration: <input checked="" type="checkbox"/> Stream <input type="checkbox"/> Wetland <input type="checkbox"/> Reservoir		
Name of Water Resource: Sugar Creek		
Brief Project Description (a more detailed description is required under Section 8): Project includes the installation of a new 18" aerial gravity sewer line crossing of Sugar Creek, including concrete piers and permanent rip-rap for erosion prevention; and the removal of an existing 12" aerial gravity sewer line crossing of Sugar Creek located approx. 150 feet downstream of the new aerial crossing. Requesting coverage under the General ARAP for "Utility Line Crossings". A licensed Contractor will be procured by the City of Brownsville to perform the work.		
Does the proposed activity require approval from the U.S. Army Corps of Engineers, the Tennessee Valley Authority, or any other federal, state, or local government agency? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
If Yes, provide the permit reference numbers: <u>Environmental review process for project currently underway and jurisdiction determination from USACE has not yet been received.</u>		
Is the proposed activity associated with a larger common plan of development? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
If Yes, submit site plans and identify the location and overall scope of the common plan of development. Plans attached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
If applicable, indicate any other federal, state, or local permit authorizations that the overall project site (common plan of development) has obtained in the past (i.e. construction general permit coverage and/or other ARAPs): ---		
Section 5. Project Schedule (fill in information and check appropriate boxes)		
Start date: June 1, 2016	Estimated end date: June 30, 2016	
Is any portion of the activity complete now? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, describe the extent of the completed portion: ---		

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Section 11. Compensatory Mitigation		Attached	
		Yes	No
11.1	A detailed discussion of the proposed compensatory mitigation	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11.2	Describe how the compensatory mitigation would result in no net loss of resource value	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11.3	Provide a detailed monitoring plan for the compensatory mitigation site	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11.4	Describe the long-term protection measures for the compensatory mitigation site (e.g., deed restrictions, conservation easement)	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Certification and Signature			
<p>An application submitted by a corporation must be signed by a principal executive officer; from a partnership or proprietorship, by the partner or proprietor respectively; from a municipal, state, federal or other public agency or facility, the application must be signed by either a principal executive officer, ranking elected official, or other duly authorized employee.</p> <p><i>"I certify under penalty of law that this document and all attachments were prepared by me, or under my direction or supervision. The submitted information is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. As specified in Tennessee Code Annotated Section 39-16-702(a)(4), this declaration is made under penalty of perjury."</i></p>			
Mr. Regie Castellaw	BEA General Manager		10-19-2015
Printed Name	Official Title	Signature	Date

Submitting the form and obtaining more information Note that this form must be signed by the principal executive officer, partner or proprietor, or a ranking elected official in the case of a municipality; for details see **Certification and Signature** statement above. For more information, contact your local EFO at the toll-free number 1-888-891-8332 (TDEC). Submit the completed ARAP Application form (keep a copy for your records) to the appropriate EFO for the county(ies) where the ARAP activity is located, addressed to **Attention: ARAP Processing**. You may also electronically submit the complete application and all associated attachments (e.g., maps, wetland delineations and narrative portions) to water.permits@tn.gov.

EFO	Street Address	Zip Code	EFO	Street Address	Zip Code
Memphis	8383 Wolf Lake Drive, Bartlett	38133-4119	Cookeville	1221 South Willow Ave.	38506
Jackson	1625 Hollywood Drive	38305-4316	Chattanooga	1301 Riverfront Pkwy., Ste. 206	37402
Nashville	711 R S Gass Boulevard	37243	Knoxville	3711 Middlebrook Pike	37921
Columbia	1421 Hampshire Pike	38401	Johnson City	2305 Silverdale Road	37601



OFFICIAL STATE USE ONLY			
Received Date:	Permit Number: <u>NR 1502.065</u>	Reviewer:	Field Office:
Fee amount paid: <u>500.00</u>	T & E Aquatic Flora and Fauna:	Impaired Receiving Stream:	Application Review:
Date:			<input type="checkbox"/> Deficient Date: _____
Check #: <u>047418</u>	Exceptional TN Water:		<input type="checkbox"/> Complete Date: _____

**Supporting Documentation for Application for Aquatic
Resources Alteration Permit (ARAP) for Coverage Under
General Permit for Utility Line Crossings**

2015 CDBG Sewer System Improvements Project
Brownsville Energy Authority
Tegrah Project No. 1052
October 2015



Section 6: Project Description

- 6.1 The Brownsville 2015 CDBG Sewer System Improvements project includes the replacement of approximately 2,800 linear feet of existing 8- and 12-inch gravity sewer with new 18-inch gravity sewer. Approximately 54 linear feet of the total project footage includes a new aerial pipeline crossing of Sugar Creek adjacent to the Brownsville Wastewater Trickling Filter Plant site. The new 18-inch aerial gravity sewer pipeline is to be installed approximately 150 feet upstream of an existing 12-inch aerial gravity sewer crossing of Sugar Creek currently in service. The existing 12-inch aerial gravity sewer pipeline will be removed when the new 18-inch gravity sewer pipeline is placed into service.
- 6.2 A topographic map depicting the location and approximate coordinates of the proposed aerial crossing are included at Attachment 1. This map was derived from the interactive water quality assessment map found at the Tennessee Department of Environment and Conservation's website.
- 6.3 A photograph depicting the location of the proposed aerial crossing of Sugar Creek is included at Attachment 2.
- 6.4 The segment of Sugar Creek within the existing aerial gravity sewer removal is approximately 12 feet in depth from top of bank to the toe of slope and approximately 50 feet in width at the top of bank elevations. As identified by soil maps published by the National Resources Conservation Service, the substrate of the stream bed is classified as Adler Silt Loam, Occasionally Flooded (Ad). An excerpt of the soil map for the area is included as Attachment 3. The banks of Sugar Creek within the area support the growth of riparian vegetation. Additionally, existing rip-rap is in place along each bank and bottom. The land adjacent to Sugar Creek within the pipe removal area is not considered prime farmland and is undeveloped property owned by the City of Brownsville. Except for the area of work at the top of each bank at the location of the existing pipe, the remaining stream bank and stream segment within the immediate vicinity will remain undisturbed and unchanged.
- 6.5 The segment of Sugar Creek within the proposed aerial gravity sewer installation project area is approximately 12 feet in depth from top of bank to the toe of slope and approximately 54 feet in width at the top of bank elevations. As identified by soil maps published by the National

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Resources Conservation Service, the substrate of the stream bed is consistent with that identified at the existing aerial crossing as discussed above and identified at Attachment 3. The banks of Sugar Creek within the project area support the growth of riparian vegetation. The land adjacent to Sugar Creek within the project area is not considered prime farmland and is undeveloped property owned by the City of Brownsville. Except for the area of work, the remaining stream segment within the project area will remain undisturbed and unchanged.

- 6.6 Wetlands are not present within the project areas as indicated by a review of the U.S. Fish and Wildlife Service's National Wetlands Inventory Wetlands Mapper. An excerpt of the wetlands map is included as Attachment 4.
- 6.7 A preliminary jurisdiction determination has not yet been provided by the U.S. Army Corps of Engineers, Memphis District due to the environmental review process for the project is currently in progress. However, any correspondence issued by the U.S. Army Corps of Engineers, Memphis District pertaining to the proposed work will be addressed and forwarded to the TDEC ARAP writer for verification that all conditions required by the U.S. Army Corps of Engineers, Memphis District will be met.

Section 7: Project Rationale

- 7 The existing gravity sewer pipeline to be replaced by this project was constructed around 1934 using vitrified clay material and is currently under capacity during wet-weather conditions. During moderate to heavy rainfall events, the existing gravity sewer is severely overloaded due to inflow and infiltration, which causes wet-weather sanitary sewer overflows (SSOs) to occur that discharge into Sugar Creek, which is listed on the Proposed Final Version Year 2014 303(d) List as having "*collection system failure*" as a pollutant source. The rationale for the overall project is to increase gravity sewer pipeline capacity; eliminate inflow/infiltration into the gravity sewer system; and eliminate SSOs that are attributed to the existing pipeline. The proposed activity (utility line crossing) will be required in order to fulfill the purpose of the overall project and ultimately eliminate the pollutant source into Sugar Creek. The only alternative to the proposed activity is the "No Action" alternative; however, performing no action and allowing further stream quality degradation due to "*collection system failure*" cannot be justified.

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There are several design alternatives with regard to the type of permanent erosion prevention measures to be implemented, including bioengineering techniques. While the incorporation or complete use of bioengineering techniques is typically less expensive than armored (rip-rap) erosion prevention measures, the use of bioengineering techniques were not selected for the project area.

Due to the urban locale of the project site, there is an extremely high potential of unintended destruction of established vegetative material with the use of nonselective herbicides, property mowing, and future property development. Over time, these destructive actions will destabilize the banks allowing erosion and washouts to occur. Therefore, to eliminate this potential, armored (rip-rap) erosion prevention measures were selected in lieu of bioengineering techniques.

Section 8: Technical Information

- 8.1 Detailed drawings of the proposed activity are included as Attachment 5.
- 8.2 The applicant will procure the services of a contractor licensed in the State of Tennessee to perform the proposed activity. The proposed activity is expected to be performed during the dry-weather season when the water level would be at the lowest. The sequencing of work shall be as follows:
- All temporary erosion and sediment control measures installed and maintained.
 - Concrete piers constructed for the new 18-inch gravity sewer pipe.
 - Below-grade portion of new pipeline installed and backfilled.
 - Above-grade (aerial) portion of new pipeline installed and anchored to piers.
 - New rip-rap replaced along the pipeline trench of the new pipeline required to meet depth requirements.
 - Turf reinforcement matting installed at top of banks along with seeding and straw.
 - After the new gravity sewer pipeline is placed into service, the above-grade (aerial) portion of the existing pipeline will be removed by excavating the upper portion of the banks and cutting the pipe on each side of the bank. Any existing rip-rap located within the excavation areas will be removed, stockpiled and reinstalled.
 - Turf reinforcement matting installed at the top of the bank along with seeding and straw.

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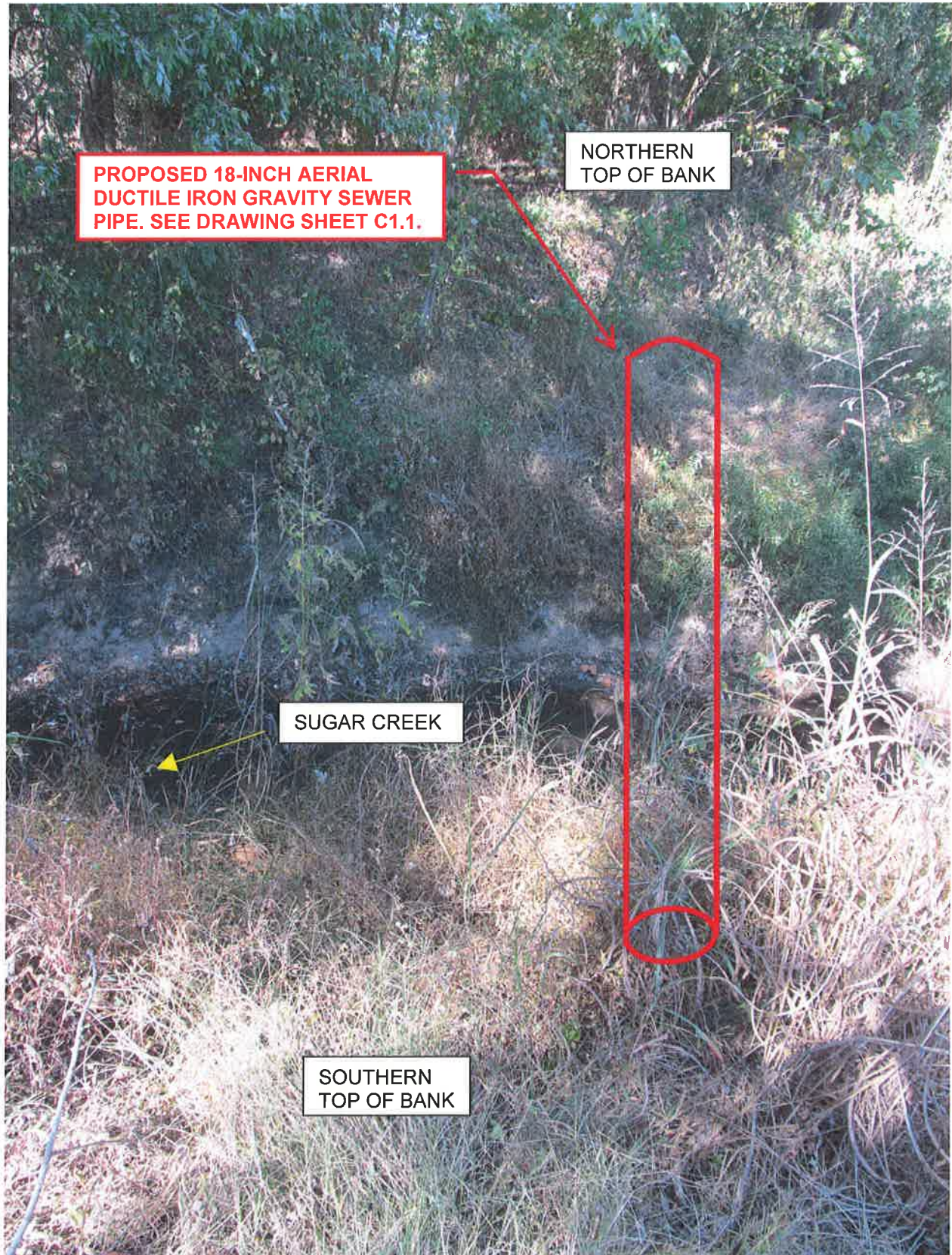


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- 8.3 Remove temporary erosion and sediment control measures upon stabilization of disturbed areas. The type of permanent erosion prevention measures to be implemented is the installation of new TDOT Class B rip-rap with geotextile fabric underlayment, turf reinforcement matting and seeding. During construction activities, the use of in-stream silt barriers will prevent sediment transport.

ATTACHMENT 1



ATTACHMENT 2



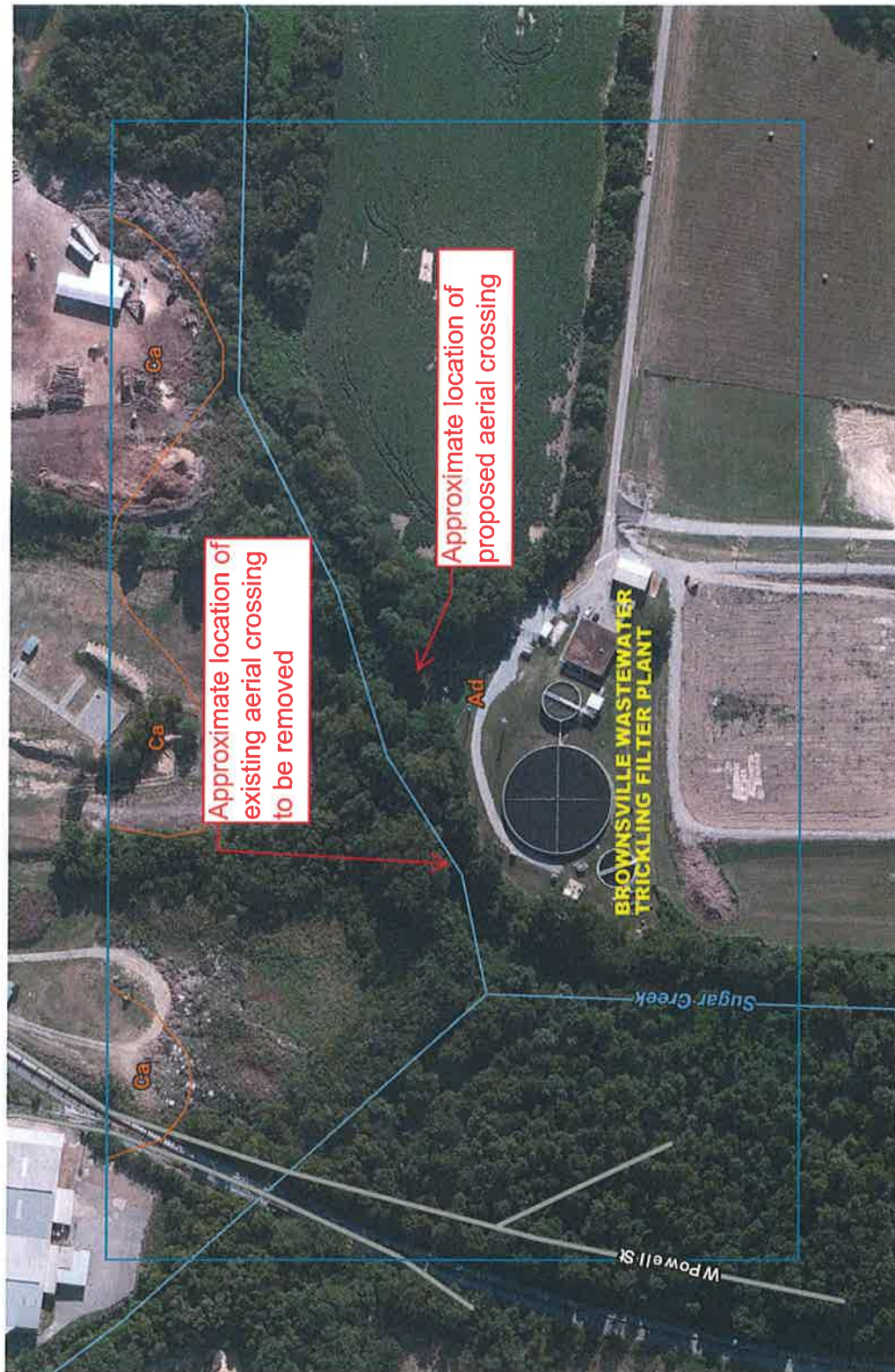
**PROPOSED 18-INCH AERIAL
DUCTILE IRON GRAVITY SEWER
PIPE. SEE DRAWING SHEET C1.1.**

NORTHERN
TOP OF BANK

SUGAR CREEK

SOUTHERN
TOP OF BANK

ATTACHMENT 3



Map Unit Legend

Haywood County, Tennessee (TN075)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Ad	Adler silt loam, occasionally flooded	29.7	93.5%
Ca	Calloway silt loam	2.1	6.5%
Totals for Area of Interest		31.7	100.0%



U.S. Fish and Wildlife Service

National Wetlands Inventory

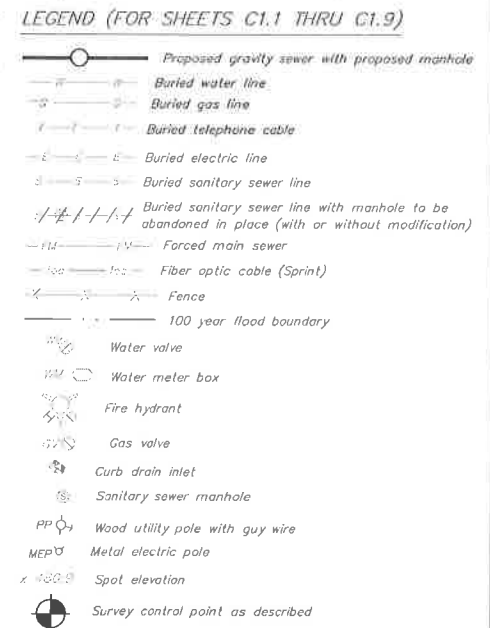
Sep 27, 2015



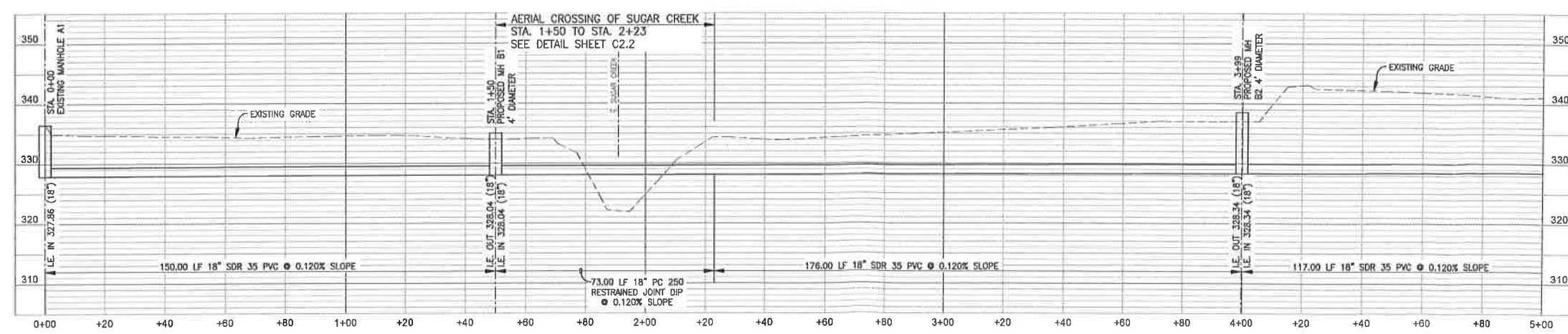
This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

User Remarks:

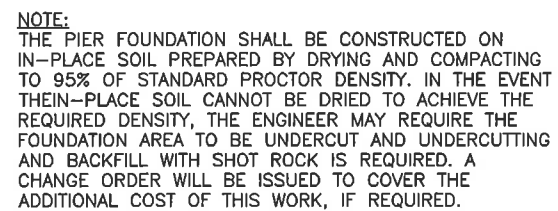
ATTACHMENT 5



HORIZONTAL AND VERTICAL SURVEY CONTROL POINTS					
POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION	Sheet No.
Control A	475260.81	886777.32	337.42	Mogul in asphalt	CH.1
Control B	471180.43	979588.81	336.58	Rebar with plastic cap	CH.1
Control C	472500.33	964588.83	337.53	Mogul near north edge of asphalt	CH.1
Control D	472605.70	955058.33	343.56	Mogul near east side of asphalt	CH.1
Control E	472878.29	955661.88	341.09	Mogul in paved drive on Laneo Dr	CH.5
Control F	473281.92	955478.89	337.12	Mogul at Grand Ave. and Laneo Dr	CH.5
Control G	473281.92	955617.38	343.53	Mogul in Grand Ave. (Circled Drive)	CH.5
Control H	474406.61	955238.63	343.33	Mogul near 34th Ave	CH.5



OF 12 SHEETS



CONCRETE PIER DETAIL
NOT TO SCALE

